

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)	Group Art Unit:	Unassigned
)		
V. Sivaramakrishnan et al.)	Examiner:	Unassigned
)		
Serial No: Unassigned)	PRELIMINARY AMENDMENT	
)		
Filed: July 31, 2001)		
)		
For: VAPORIZING REACTANT)		
LIQUIDS FOR CHEMICAL)		
VAPOR DEPOSITION FILM)		
PROCESSING)		
)		

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Preliminary to the examination of the above-referenced patent application, please amend the application as indicated below:

IN THE SPECIFICATION

On page 1, at lines 5-9, please **rewrite** the first paragraph after the title as follows:

This application is a continuation of copending U.S. Patent Application Serial No. 09/660,208, filed on September 12, 2000, which is a divisional of U.S. Patent Application Serial No. 08/574,999, filed December 1995, now U.S. Patent No. 6,224,681, which is a File Wrapper Continuation of application number 08/278,984, filed July 22, 1994, now abandoned, which is a File Wrapper Continuation of original application number 07/990,755, filed December 15, 1992, now abandoned, which are all incorporated by reference. This application is related to previously-filed copending U.S. Patent Application Serial No. 07/912,024, filed July 9, 1992, (now U.S. Pat. No. 5,419,924), which is a continuation of Serial No. 07/626,274, now abandoned.

On page 4, line 5, after "evaporation" please **insert** --by heating--.

On page 6, line 24, after "can" please **insert** --be--.

On page 7, line 24, after "0-30" please **replace** "m" with --μm--.

On page 8, line 12, after "61" please **insert** --(Fig. 2D)--.

On page 8, line 14, please **replace** "aslo" with --also--.

On page 8, line 16, please **replace** "steal" with --steel--.

IN THE DRAWINGS

Please replace the 5 pages of informal drawing bearing Figures 1, and 2A through 2D with the 5 pages of formal drawings bearing Figures 1, 2A through 2D, and 3, which are enclosed herewith.

IN THE CLAIMS

Please **cancel** claims 1 - 9.

Please **add** new Claims 10 - 28 as follows:

--10. A vaporizer for vaporizing a liquid and mixing the vaporized liquid with a carrier gas, said vaporizer comprising:

a valve body having a first aperture, a second aperture and a third aperture;

a valve seat through which fluid flows;

a gas inlet port for receiving said carrier gas, said gas inlet port connected to said first aperture through a first fluid channel;

a liquid inlet port for receiving the liquid, said liquid inlet port connected to said second aperture through a second fluid channel;

a valve mechanism including a valve element disposed adjacent to and opposite said valve seat, said valve element being continuously adjustable by said valve mechanism over a continuous range of settings between and including a fully closed position and a fully open position; and

an outlet port connected to said third aperture through a third fluid channel.--

--11. The vaporizer of claim 10 wherein in its fully closed position, the valve element abuts said valve face and during operation prevents flow of liquid through said second aperture.--

--12. The vaporizer of claim 10 wherein said valve seat has a seat face that is opposed to said valve element and in which said second aperture is formed.--

--13. The vaporizer of claim 12 wherein said seat face is planar.--

--14. The vaporizer of claim 13 wherein said seat face is circular and has a diameter of about 0.5 cm.--

--15. The vaporizer of claim 12 wherein said valve element has a valve face that is opposed to said valve seat.--

--16. The vaporizer of claim 15 wherein said valve face is planar.--

--17. The vaporizer of claim 10 wherein said valve seat has a seat face that is planar and opposed to said valve element and in which said second aperture is formed, said valve element has a valve face that is planar and opposed to said valve seat, and said seat face and valve face are parallel to each other.--

--18. A chemical vapor deposition system using a liquid reactant and a carrier gas, comprising:

a chemical vapor deposition chamber having a gas inlet port, and

a liquid reactant vaporizer having an outlet port connected to said chamber inlet port, said vaporizer comprising:

a valve body having a first aperture, a second aperture, and a third aperture;

a valve seat;

a gas inlet port for receiving said carrier gas, said gas inlet port connected to said first aperture through a first fluid channel;

a liquid inlet port for receiving the liquid reactant, said liquid inlet port connected to said second aperture through a second fluid channel;

a valve mechanism including a valve element disposed adjacent to said valve seat and forming a valve region, said valve seat being continuously adjustable by said valve mechanism over a continuous range of settings between and including a fully closed position and a fully open position so as to variably control the flow rate of the fluid; and

an outlet port connected to said third aperture through a third fluid channel.--

--19. A vaporizer for vaporizing a liquid and mixing the vaporized liquid with a carrier gas, said vaporizer comprising:

a valve body having a first aperture, a second aperture and a third aperture;

a valve seat through which fluid flows;

a gas inlet port for receiving said carrier gas, said gas inlet port connected to said first aperture through a first fluid channel;

a liquid inlet port for receiving the liquid, said liquid inlet port connected to said second aperture through a second fluid channel;

a valve mechanism including a valve element disposed adjacent to and opposite said valve seat, said valve element being continuously adjustable by said valve mechanism over a continuous range of settings between and including a fully closed position and a fully open position; and

an outlet port connected to said third aperture through a third fluid channel,

the valve body defining a first volume in adjustable, fluid communication with a second volume through the valve seat wherein during normal operation the pressure in the first volume is different than the pressure in the second volume.--

--20. The vaporizer of claim 19 wherein in its fully closed position, the valve element abuts said valve face and during operation prevents flow of liquid through said second aperture.--

--21. The vaporizer of claim 19 wherein said valve seat has a seat face that is opposed to said valve element and in which said second aperture is formed.--

--22. The vaporizer of claim 19 wherein said seat face is planar.--

--23. The vaporizer of claim 22 wherein said seat face is circular and has a diameter of about 0.5 cm.--

--24. The vaporizer of claim 21 wherein said valve element has a valve face that is opposed to said valve seat.--

--25. The vaporizer of claim 24 wherein said valve face is planar.--

--26. The vaporizer of claim 19 wherein said valve seat has a seat face that is planar and opposed to said valve element and in which said second aperture is formed, said valve element has a valve face that is planar and opposed to said valve seat, and said seat face and valve face are parallel to each other.--

--27. A chemical vapor deposition system using a liquid reactant and a carrier gas, comprising:

a chemical vapor deposition chamber having a gas inlet port, and
a liquid reactant vaporizer having an outlet port connected to said chamber inlet port, said vaporizer comprising:

a valve body having a first aperture, a second aperture, and a third aperture;

a valve seat;

a gas inlet port for receiving said carrier gas, said gas inlet port connected to said first aperture through a first fluid channel;

a liquid inlet port for receiving the liquid reactant, said liquid inlet port connected to said second aperture through a second fluid channel;

a valve mechanism including a valve element disposed adjacent to said valve seat and forming a valve region, said valve seat being continuously adjustable by said valve mechanism over a continuous range of settings between and including a fully closed position and a fully open position so as to variably control the flow rate of the fluid; and

the outlet port connected to said third aperture through a third fluid channel,

the valve body defining a first volume in adjustable, fluid communication with a second volume through the valve seat wherein during normal operation the pressure in the first volume is different than the pressure in the second volume.--

--28. A method for vaporizing a liquid and mixing the vaporized liquid with a carrier gas, the method comprising:

a) providing a vaporizer having:

a valve body having a first aperture, a second aperture and a third aperture;

a valve seat through which fluid flows;

a gas inlet port for receiving said carrier gas, said gas inlet port connected to said first aperture through a first fluid channel;

a liquid inlet port for receiving the liquid, said liquid inlet port connected to said second aperture through a second fluid channel;

a valve mechanism including a valve element disposed adjacent to and opposite said valve seat, said valve element being continuously adjustable by said valve mechanism over a continuous range of settings between and including a fully closed position and a fully open position; and

an outlet port connected to said third aperture through a third fluid channel,

the valve body defining a first volume in adjustable, fluid communication with a second volume through the valve seat wherein during normal operation the pressure in the first volume is different than the pressure in the second volume;

- b) providing sources of liquid and carrier gas;
- c) vaporizing liquid in the valve seat by operating the valve and sources such that there is a change in pressure from the liquid inlet to the vapor outlet.--

R E M A R K S

The present application is a continuation application under 37 C.F.R. §1.53(b) of copending Application Serial No. 09/660,208, which is a divisional of Application Serial No. 08/574,999 ("the '999 application"), now U.S. Patent No. 6,224,681. The parent application to the '999 application was originally filed on December 15, 1992 as U.S. Pat. App. Ser. No. 07/990,755 ("the '755 application"). The parent '755 application was abandoned in favor of a first File Wrapper Continuation Application, U.S. Pat. App. Ser. No. 08/278,984. This first File Wrapper Continuation Application was subsequently abandoned in favor of a second File Wrapper Continuation application, the original '999 application. On November 19, 1998, a Notice of Allowability was issued granting 24 claims, numbered as claims 24-47, of the '999 application.

The original '999 application was abandoned in favor of a first Continued Prosecution Application ("first CPA") that was filed on March 30, 1999. In this first CPA, the 24 claims that

had been allowed in the previous '999 application were canceled without prejudice to refile a new set of 25 claims, numbered as claims 48 – 72, was submitted. A Notice of Allowability for claims 48 – 72 was mailed on June 24, 1999.

On September 24, 1999 , Applicants abandoned the first CPA of the '999 application in favor of a second Continued Prosecution Application ("second CPA"). Claims 48-72, which had been allowed in the first CPA application, were also submitted with the second CPA. However, through an error of the Patent Office, the abandoned first CPA mistakenly issued as U.S. Pat. Ser. No. 5,976,262 on November 2, 1999. The PTO withdrew U.S. Pat. Ser. No. 5,976,262 from issue on November 2, 1999. On June 16, 2000 the Examiner allowed claims 48-72 of the second CPA of the '999 application.

Upon entry of the claims presented above, claims 10-28 will remain pending in the above-referenced patent application. In this Preliminary Amendment to the continuation application, Applicant has canceled claims 1-9 and added new claims 10–28. However, claims 10–28 are similar in scope to previously-allowed claims 24-47, which were canceled without prejudice in the June 17, 1999 Preliminary Amendment to the first CPA application. The Preliminary Amendment additionally corrects several typographical errors that were previously corrected in the parent patent application. No new matter has been added as a result of this Preliminary Amendment.

All of the limitations of new claims 10-28 are clearly supported by the specification according to the present invention. Claims 10-28 are, therefore, allowable.

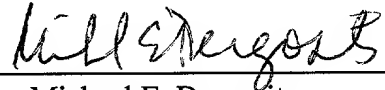
CONCLUSION

Applicant respectfully submits that Claims 10-28 are now in condition for allowance. The Examiner is encouraged to call the undersigned collect at (415)705-6377 if there are questions, or if it will expedite allowance of this application. The Commissioner is hereby authorized to charge payment of any fees associated with this communication or credit any overpayment to Deposit Account No. 04-0822.

Respectfully submitted,

DERGOSITS & NOAH LLP

Dated: July 31, 2001

By: 
Michael E. Dergosits
Reg. No. 31,243

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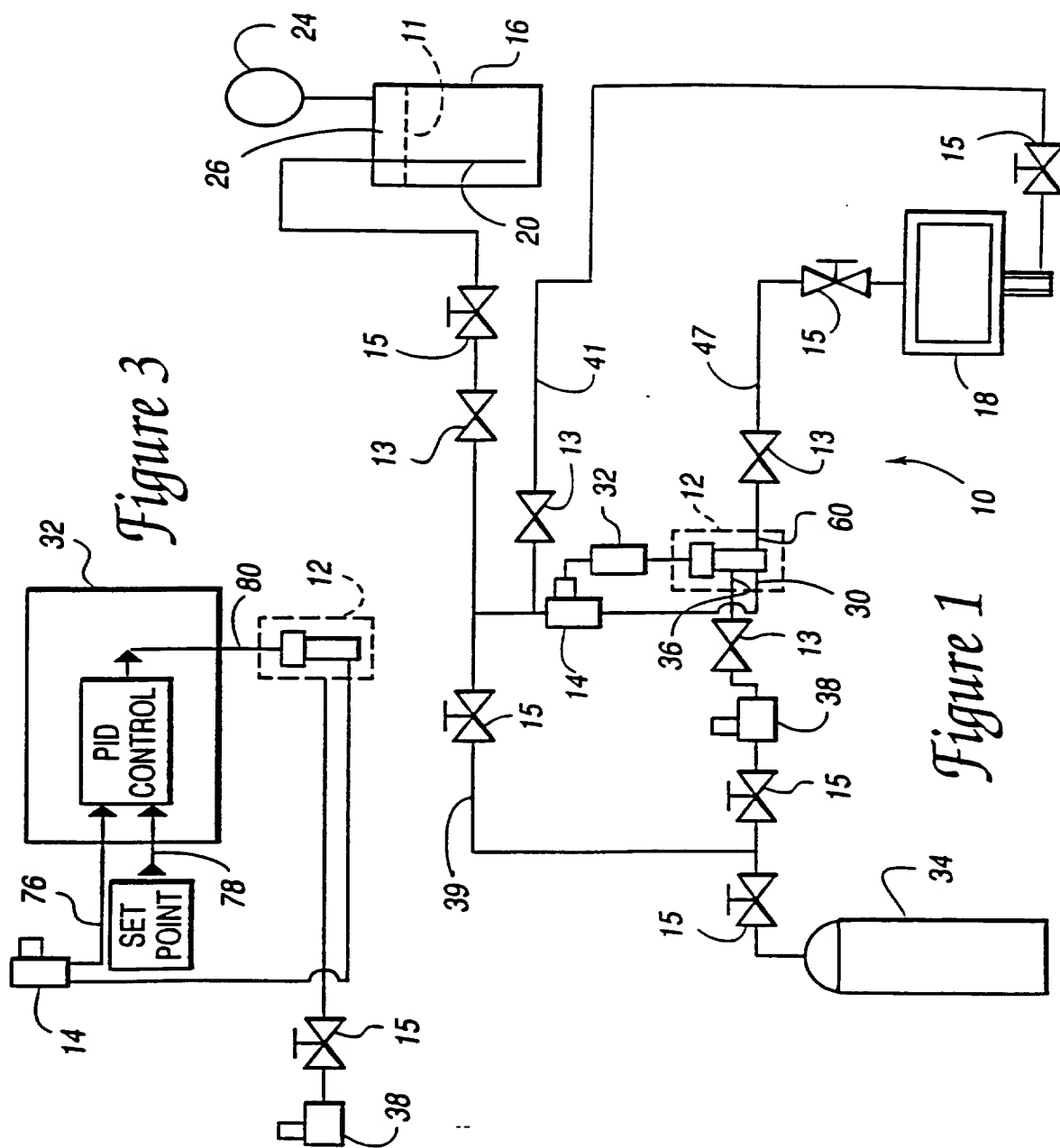
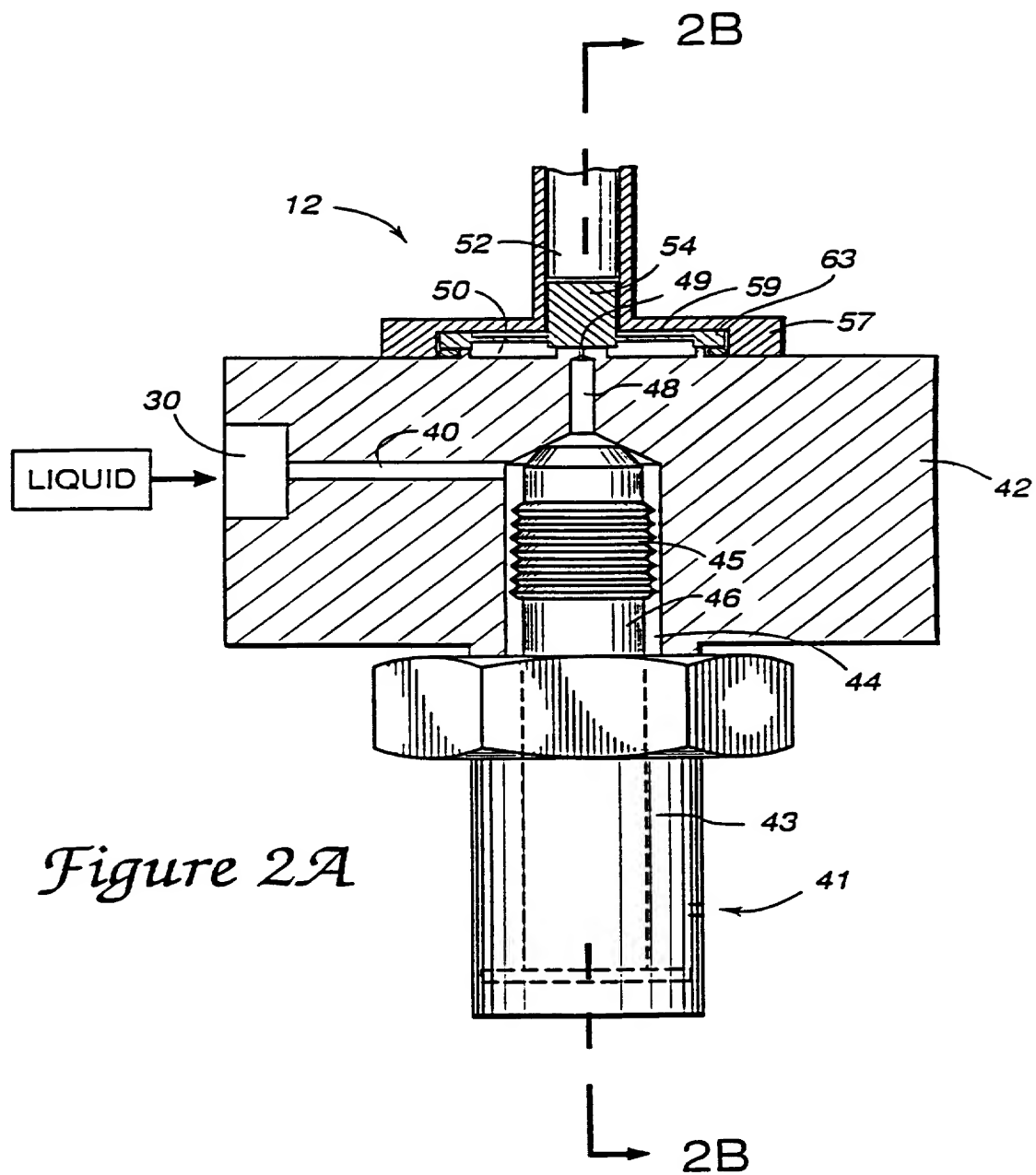


Figure 1



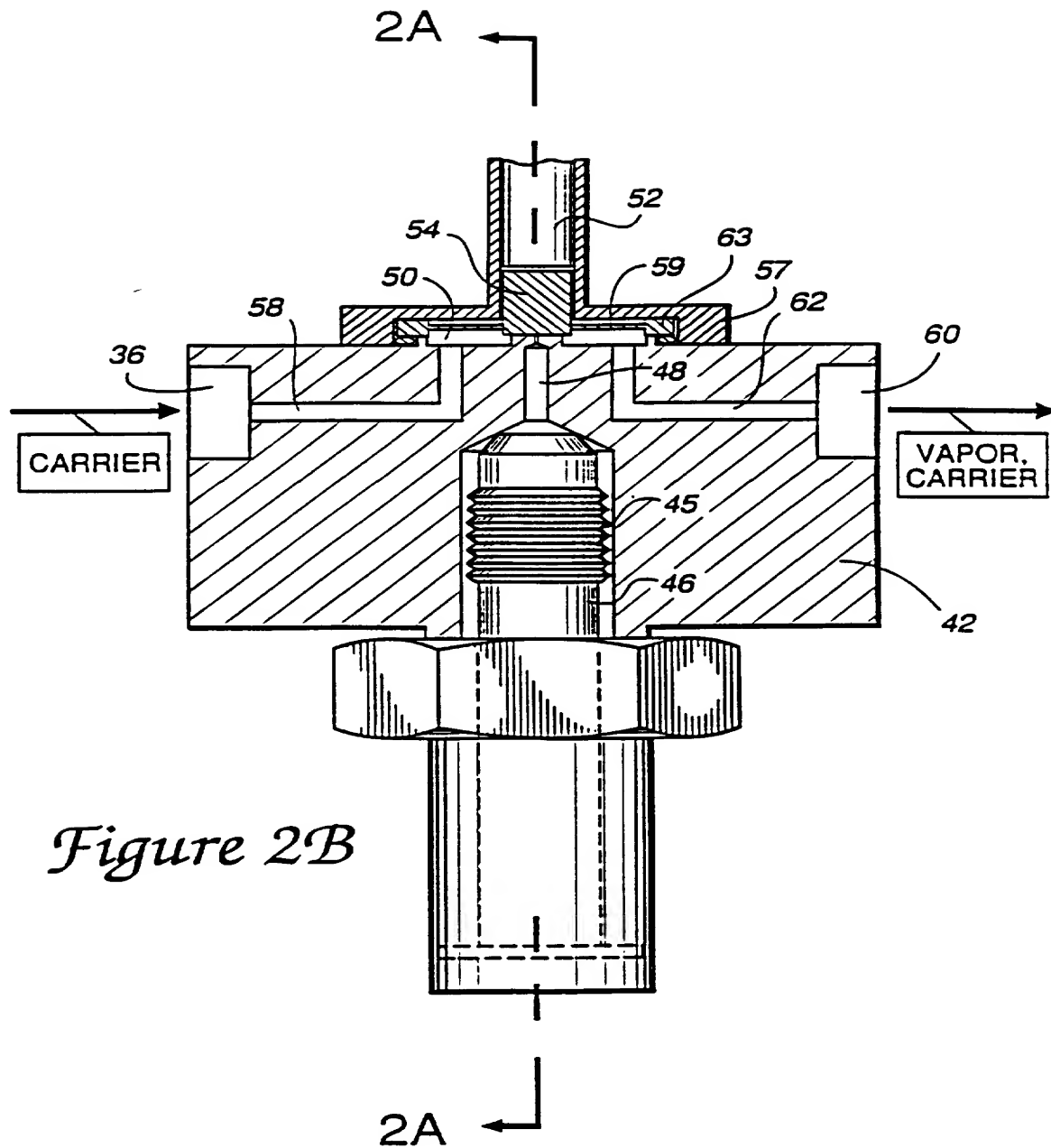


Figure 2B

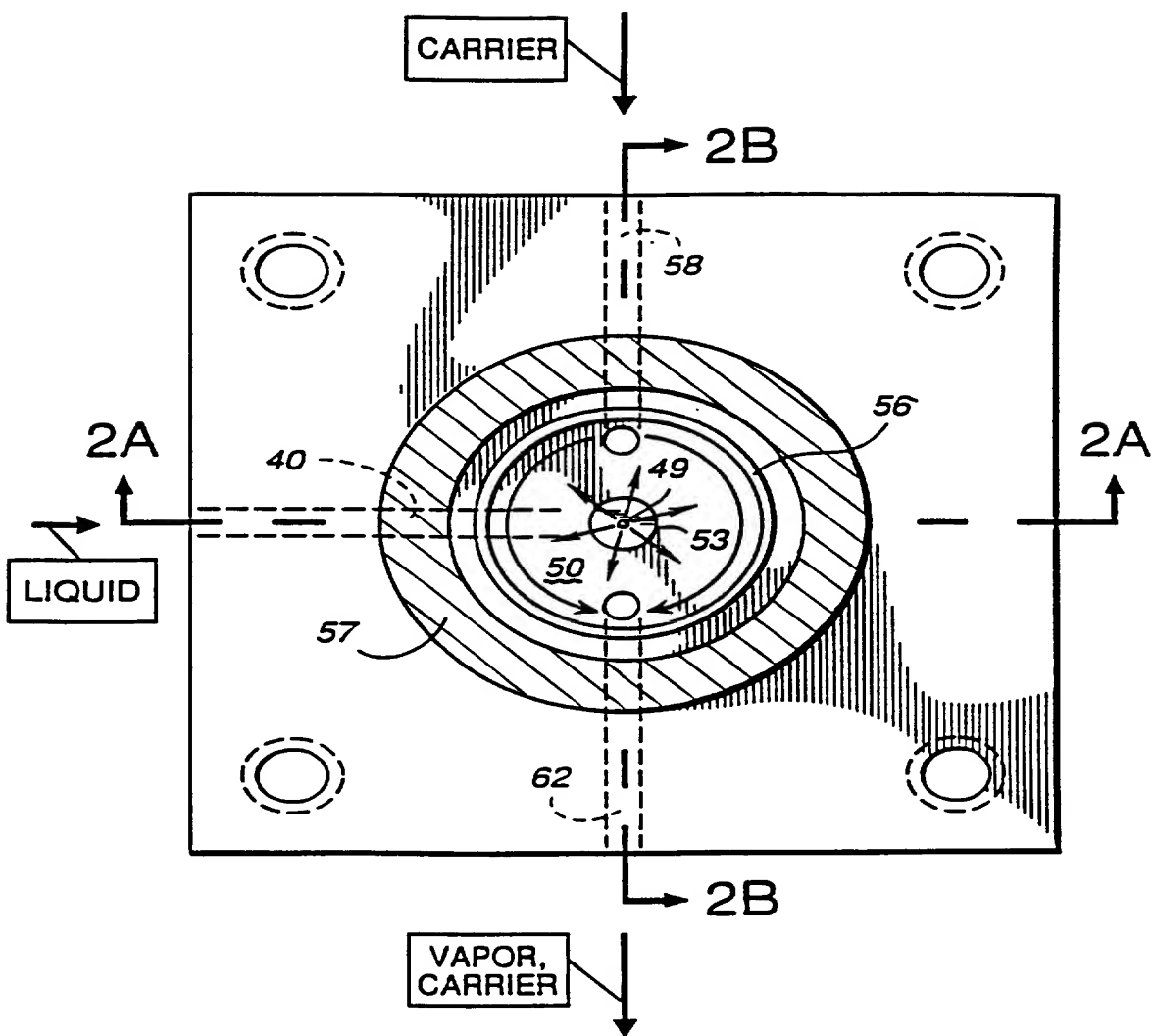


Figure 2C

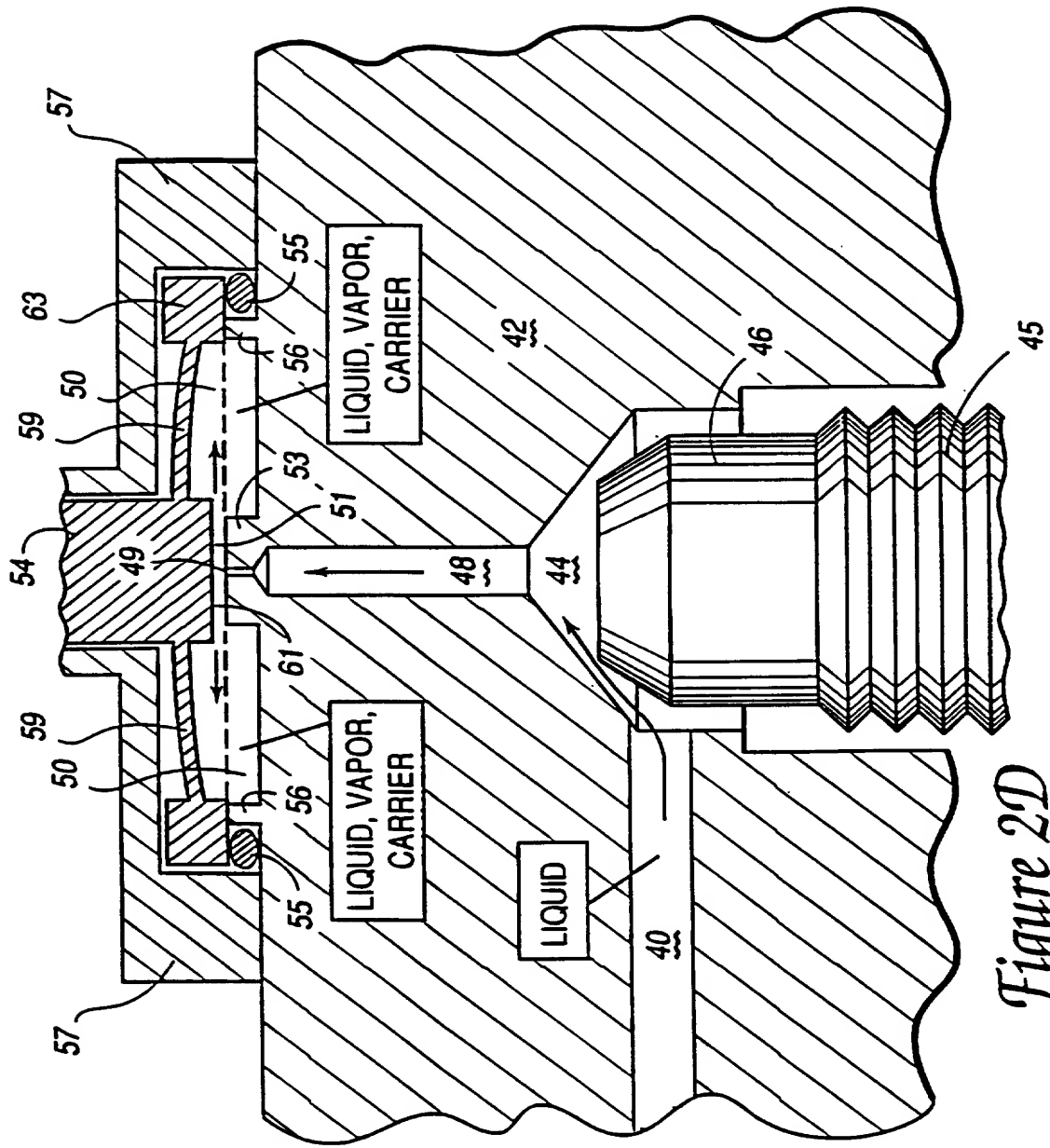


Figure 2D